COMMUNAL EGG-LAYING IN THE LIZARD LEIOLOPISMA GUICHENOTI (Dumeril and Bibron)

by FRANCIS J. MITCHELL*

[Read 11 September 1958]

The following observations were made in the Mount Lofty Ranges, South Australia, between 1949 and 1955. It is suggested that the communal nests discovered indicate that this species may form aggregations which possess a higher degree of social organisation than that usually credited to reptile communities.

OBSERVATIONS

On 1st May, 1949, at Waitpinga, South Australia, the writer observed several small lizards emerging from the centre of a dead Grass-tree stump (*Xanthorrhea*) about 12 inches in diameter. On further investigation no fewer than 211 eggs were found closely and uniformly packed in the sawdust-like material which surrounded the hard central core to a depth of about six inches. Of these, 62 had hatched, many of the young being busily engaged digging themselves to the surface, and the majority of the remainder hatched in the laboratory during the ensuing 48 hours. Of the 37 which failed to hatch, 31 contained fully developed embryos which had been dehydrated in transit to the laboratory, and the remaining six, which were much smaller, measuring only 8 × 5 mm. were apparently infertile. Immediately before hatching the eggs measured 13 × 8 mm. Gravid females taken at the same locality between the 7th and 14th November, 1948, each contained three eggs measuring 7 × 4 mm. The size of these eggs as compared with that immediately before hatching indicates considerable assimilation of fluid during development, the volume increasing almost four times. On hatching the lizards measured 41 mm. and they grew without external food to 47-48 mm.

In the hope of being able to observe the actual deposition of the eggs, a further search of the area was made early in December, 1949, but no aggregations of more than four or five individuals were seen, and these small cliques were found to include males. All females examined were still carrying eggs. However, the investigation of potential nesting sites resulted in the discovery of an old nest containing 29 egg-shells. These were inside another *Xanthorrhea* stump about two miles from the first site. The nest was old, and appeared to have been dug out by a native rat.

Since May, 1949, all casual inquiries received at the South Australian Museum concerning lizard's eggs have been investigated, and this has resulted in the discovery of four more communal nests.

On the 23rd December, 1953, a nest containing 49 eggs measuring 9 × 6 mm. was found in a garden at Stirling, South Australia. The eggs were buried about two inches beneath the surface in loose loamy soil, and were exposed when a small hole was being dug to plant a shrub. The eggs had been freshly laid as the garden was only prepared for planting during the previous week-end. Specimens of *L. guichenoti* were abundant in blackberry bushes adjacent to the garden.

* Curator of Reptiles, South Australian Museum.

On the 22nd January, 1955, a nest, estimated to contain over 100 eggs measuring approximately 1 cm. long, was found in a heap of vegetable debris lying against the wall of a wooden shed at Aldgate, South Australia. Unfortunately, these eggs were not examined, but using E. R. Waite's "Reptiles and Amphibians of South Australia", the observer, Mr. L. K. Clarke, of Adelaide, South Australia, identified the embryos as *L. metallicum*. The species *metallicum* and *guichenoti* are closely allied and could easily be confused; *L. guichenoti* is the common species in this district.

On the 4th February, 1955, another nest was discovered at Stirling, South Australia. It contained 88 eggs which were found lying side by side in a hollow under a rotting log. The embryos were sufficiently well developed for recognition as *Leiolopisma guichenoti*.

A nest containing "many dozens of eggs" was exposed during the ploughing of a partly cleared paddock near Port Macdonnell, South Australia, during April, 1948. Some of the eggs had hatched, and the finder, Mr. G. H. Tilley of Moorak, South Australia, captured several of the young and preserved them in methylated spirit, together with a dozen unhatched eggs. These specimens were presented to the South Australian Museum in June, 1955, and identified as *L. guichenoti*. (Specimens registered under S.A.M. R 3713.)

DISCUSSION.

Sociologists have accepted the greater majority of group behaviour in reptiles as simple tropistic aggregation without a communal aim or internal organisation. Although in the present case the deposition of the eggs has not been directly observed, the data suggests that the gravid females congregate for the purpose of locating a common nesting site. Assuming this to be correct, these lizards must possess a well-developed sense of recognition and be capable of forming communities in which there is distinct coaction between the individuals. Reviewing the observations it is difficult to conceive any other means by which 30-70 female lizards could independently seek out a single nesting site. Furthermore, the nesting sites chosen do not appear to be unique within the general environment. Vegetable debris and dead *Xanthorrhea* stumps are abundant throughout the sclerophyllous scrub which forms the major habitat of this species in the Mount Lofty Ranges, while the 49 eggs discovered at Stirling in December, 1953, were in the loose soil of a garden plot, all sections of which appeared to be of uniform consistency and humidity.

The present evidence is fragmentary and inconclusive, but it is hoped that the publication of these observations will stimulate the interest of other workers who may be able to undertake a complete field study of this interesting sociological problem.